

WHAT IS CLAIMED IS:

1. A method of manufacturing an electronic circuit,
comprising at least one of forming a first pattern and forming
5 a second pattern,

forming the first pattern comprising:

forming an electrostatic latent image in a predetermined
pattern on a first photosensitive base ;

forming a first visible image on the first photosensitive
10 base on which the electrostatic latent image is formed, by
bringing charged particles essentially made of resin into
electrostatic adhesion with the first photosensitive base;

transferring the first visible image formed on the first
photosensitive base onto a first intermediate transfer base, by
15 bringing the first visible image into contact with and pressing
the first visible image onto the first intermediate transfer base;

forming an integrated resin layer by heating the first
visible image transferred onto the first intermediate transfer
base to soften the resin constituting the charged particles; and

20 transferring the integrated resin layer onto a first base
material by bringing the resin layer into contact with and
pressing the resin layer onto the first base material, and

forming the second pattern comprising:

forming an electrostatic latent image in a predetermined
25 pattern on a second photosensitive base;

forming a second visible image on the second photosensitive
base on which the electrostatic latent image is formed, by
bringing metal-containing charged particles essentially made of

resin and containing metal particulates into electrostatic
adhesion with the second photosensitive base;

transferring the second visible image formed on the second
photosensitive base onto a second intermediate transfer base, by
5 bringing the second visible image into contact with and pressing
the second visible image onto the second intermediate transfer
base;

forming an integrated metal-containing resin layer by
heating the second visible image transferred onto the second
10 intermediate transfer base to soften the resin constituting the
metal-containing charged particles;

transferring the metal-containing resin layer onto a
second base material by bringing the metal-containing resin layer
into contact with and pressing the metal-containing resin layer
15 onto the second base material; and

forming a conductor metal layer by electroless plating on
the metal-containing resin layer transferred onto the second base
material.

2. The method of manufacturing an electronic circuit
20 as set forth in claim 1, wherein forming the first pattern and
forming the second pattern are alternately performed once or
alternately repeated a plurality of times.

3. The method of manufacturing an electronic circuit
as set forth in claim 1,
25 wherein, in at least one of forming the first pattern and
forming the second pattern, the resin constituting the charged
particles or the resin constituting the metal-containing charged
particles is B-staged thermosetting resin.

4. The method of manufacturing an electronic circuit as set forth in claim 1,

wherein at least one of forming the first pattern and forming the second pattern further comprises:

5 curing the resin layer transferred onto the first base material or the metal-containing resin layer transferred onto the second base material by heating or light irradiation.

5. The method of manufacturing an electronic circuit as set forth in claim 1,

10 wherein at least one of forming the first pattern and forming the second pattern further comprises:

bringing low-melting metal particles into adhesion with the resin layer transferred onto the first base material or the metal-containing resin layer transferred onto the second base material; and

15 heating and melting the adhering low-melting metal particles.

6. The method of manufacturing an electronic circuit as set forth in claim 1,

20 wherein the resin constituting the charged particles adhering on the first photosensitive base or the resin constituting the metal-containing charged particles adhering onto the second photosensitive base contains a fluorescent substance, and

25 at least one of forming the first pattern and forming the second pattern further comprises judging whether a pattern of the resin containing the fluorescent substance is good enough or not.

7. A method of manufacturing an electronic circuit

comprising at least one of forming a first pattern and forming a second pattern,

forming the first pattern comprising:

forming an electrostatic latent image in a predetermined
5 pattern on a first photosensitive base;

forming a first visible image on the first photosensitive base on which the electrostatic latent image is formed, by bringing charged particles essentially made of resin into electrostatic adhesion with the first photosensitive base; and

10 transferring the first visible image formed on the first photosensitive base onto a first base material electrostatically, and

forming the second pattern comprising:

forming an electrostatic latent image in a predetermined
15 pattern on a second photosensitive base;

forming a second visible image on the second photosensitive base on which the electrostatic latent image is formed, by bringing metal-containing charged particles essentially made of resin and containing metal particulates into electrostatic
20 adhesion with the second photosensitive base;

transferring the second visible image formed on the second photosensitive base onto a second base material electrostatically; and

forming a conductive metal layer by electroless plating
25 on the second visible image transferred onto the second base material.

8. The method of manufacturing an electronic circuit as set forth in claim 7, wherein forming the first pattern and

forming the second pattern are alternately performed once or alternately repeated a plurality of times.

9. The method of manufacturing an electronic circuit as set forth in claim 7,

5 wherein, in at least one of forming the first pattern and forming the second pattern, the resin constituting the charged particles or the resin constituting the metal-containing charged particles is B-staged thermosetting resin.

10 10. The method of manufacturing an electronic circuit as set forth in claim 7,

wherein at least one of forming the first pattern and forming the second pattern further comprises:

curing the resin contained in the first visible image transferred onto the first base material or the resin contained
15 in the second visible image transferred onto the second base material by heating or light irradiation.

11. The method of manufacturing an electronic circuit as set forth in claim 7,

20 wherein at least one of forming the first pattern and forming the second pattern further comprises:

bringing low-melting metal particles into adhesion with the first visible image transferred onto the first base material or the second visible image transferred onto the second base material; and

25 heating and melting the adhering low-melting metal particles.

12. The method of manufacturing an electronic circuit as set forth in claim 7,

wherein the resin constituting the charged particles adhering on the first photosensitive base or the resin constituting the metal-containing charged particles adhering on the second photosensitive base contains a fluorescent substance, and

wherein at least one of forming the first pattern and forming the second pattern further comprises judging whether a pattern of the resin containing the fluorescent substance is good enough or not.

13. A manufacturing apparatus of an electronic circuit, comprising:

a photosensitive drum;

a mechanism configured to form an electrostatic latent image in a predetermined pattern on the photosensitive drum;

a developing mechanism configured to form a visible image on the photosensitive drum on which the electrostatic latent image is formed, by bringing charged particles essentially made of resin into electrostatic adhesion with the photosensitive drum;

an intermediate transfer drum;

an intermediate transfer mechanism configured to transfer the visible image formed on the photosensitive drum onto the intermediate transfer drum, by bringing the visible image into contact with and pressing the visible image onto the intermediate transfer drum;

a mechanism configured to heat the visible image transferred onto the intermediate transfer drum to soften the resin constituting the charged particles; and

a base transfer mechanism configured to transfer a layer

of the softened resin onto a base material by bringing the layer of the resin into contact with and pressing the layer of the resin onto the base material.

14. The manufacturing apparatus of an electronic
5 circuit as set forth in claim 13, further comprising:

an electroless plating apparatus in which the resin layer transferred onto the base by the base transfer mechanism is subjected to electroless plating.

15. The manufacturing apparatus of an electronic
10 circuit as set forth in claim 13, further comprising:

a pattern recognizing unit configured to recognize a pattern of the resin layer transferred onto the base by the base transfer mechanism.

16. The manufacturing apparatus of an electronic
15 circuit as set forth in claim 15, further comprising:

a position correcting mechanism configured to correct a position of the pattern of the resin layer.

17. An manufacturing apparatus of an electronic circuit,
comprising:

20 a photosensitive drum;

a mechanism configured to form an electrostatic latent image in a predetermined pattern on the photosensitive drum;

a developing mechanism configured to form a visible image on the photosensitive drum on which the electrostatic latent image
25 is formed, by bringing charged particles essentially made of resin into electrostatic adhesion with the photosensitive drum; and

a base transfer mechanism configured to transfer onto a base material the visible image formed on the photosensitive drum

electrostatically.

18. The manufacturing apparatus of an electronic circuit as set forth in claim 17, further comprising:

an electroless plating apparatus in which the visible image
5 transferred onto the base by the base transfer mechanism is subjected to electroless plating.

19. The manufacturing apparatus of an electronic circuit as set forth in claim 17, further comprising:

a pattern recognizing unit configured to recognize a
10 pattern of the visible image transferred onto the base by the base transfer mechanism.

20. The manufacturing apparatus of an electronic circuit as set forth in claim 19, further comprising:

a position correcting mechanism configured to correct a
15 position of the pattern of the visible image.